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A Description of Two New Species of Acrotelsa

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The only work which has appeared, hitherto, dealing with the Thysanura of Western Australia, is that of Silvestri (1907), who described a collection made by the Hamburg Expedition in 1905 under Drs. Michaelsen and Hartmeyer. Silvestri states that although Western Australia was at one time regarded as almost lacking in Thysanura, no fewer than sixteen species were represented in this collection, fifteen being referable to the family Lepismatidae and one to the Japygidae. Of the former, twelve species proved to be new, and for one a new genus (Trinemura) was established. Of the fifteen genera of Lepismatidae mentioned by Escherisch in his monograph on the group, the genus Acrotelsa, to which belong the two new species here described, is almost cosmopolitan. It is of interest that the first Thysanuran recorded from Australia was a specimen of the genus (*Acrotelsa producta*) from the Peak Downs in Queensland.

The classification of this family is based largely on the following characters:—The distribution of the setae and the tufts of setae or combs; the shape of the tenth tergite and the arrangement of the setae thereon; the number of abdominal styles, and the form of the genital appendages, body scales and palps. Very little importance seems to have been attached to the structure of the mouth parts, perhaps because of the general similarity that exists between those of the different species and of the difficulty of dissection. In this contribution an endeavour has been made to give a more complete description of the appendages, with a view to assisting in identification, though differences in the structure are not always very marked in closely related forms. Silvestri has attached importance to the metasternite, both as to its form and the arrangement of the setae upon it. An account is here given of the condition of the mesosternite as furnishing a further aid to identification.

The specimens described form part of the collection of the

Western Australian Museum, and our thanks are due to Mr. Glauer the Assistant Curator, for the opportunity to examine this material

Acrotelsa splendens sp. nov. (Plate XVI, figs. 1-10.)

Specific Diagnosis.—Body elongate, dorso-ventrally compress anteriorly; subcylindrical posteriorly; thorax scarcely wider tha the abdomen. Head prominent, well marked off from the body an bearing anteriorly two very conspicuous tufts of setae, the larg black eyes posteriorly situated. Tergite ten sharply terminate the converging edges concave outwards and with groups of seta arranged alternately on each side. The entire body, including th legs, covered with scales. Antennae about as long as the bod Median anal cerci as long as the abdomen. Metasternite sub triangular in shape, with two closely approximated rows of seta one each side of the apex. Mesosternite smaller, more pointed, an with two rows of setae on each lateral margin. Ovipositor withou small tuberculate spines at its apex.

Colour (in spirit) pale yellow with a dense covering of reddis brown and black scales.

Length: male 9 mm.; female 7 mm.

Locality: Mount Nairn, and the Milly Milly district.

Detailed Description.—The *Body* (Pl. XVI, fig. 1) is distinctl more flattened in the thoracic region than in the abdominal, th thoracic tergites being laterally less closely adherent to the body making it approximately as wide as the abdomen. The entir surface is covered with scales, which appear much denser in th lateral regions than dorsally, owing probably to their being shed from the central portion of the segmental plates.

The *head* is semicircular in outline anteriorly, the eyes se well back from the origin of the antennae. The cephalic setae ar stout, pectinate and radially arranged, whilst the mandibular setae project far beyond the outline of the head. The intersegmenta neck region is well defined, giving the head a detached appearance.

The *prothorax* is about half as long as broad, the posterio margin of the tergite being excavated by a deep, almost semi- circular notch. The lateral margins are fringed with stout, pectinate setae, and the posterior margin has two symmetrical combs of similar bristles.

The *mesothoracic tergite* is the largest, its posterior margin not being excavated but rather convex, and carries two combs of setae similar to those upon the preceding segment. The latera margins are setose, but less conspicuously so.

The *metathorax* is similar in shape to the mesothorax, but orter, with typical combs of setae.

The *abdomen* may be described as almost barrel-shaped, widest the region of the fourth segment and tapering slightly towards e tenth. The scales are more abundantly present here than on e thorax. The anterior abdominal sternites have a straight sterior edge, and two combs, of about ten setae in each, are set a slight inclination to the edge in a lateral position (figs. and 1b). The tenth tergite, or telson (fig. 2) is elongated and arply pointed, the width being 1.4 times the length; the lateral argins are concave outwards, giving it a more pointed appearance. his feature serves to distinguish it from the species described by lvestri, *A. devriesiana* and *A. devriesiana* sub-sp. *perspinata,* the argins of which tend to be slightly convex outwards. Further, the our paired tufts of setae on the telson are arranged asymmetrically, lvestri figuring in his species six pairs of symmetrical combs in the ie and two similar pairs in the other.

Head appendages. The antennae (figs. 9 and 9a), have an enrged basal joint, the second joint being only slightly larger than ose immediately following. Each segment bears two rows of tae, the proximal row circumferential, the other terminal, scales ing present in transverse rows. Towards the apex of the antenna, onstrictions appear at intervals of 6 segments, dividing the antenna to zones.

The *Mandibles* (fig. 7) are strongly convex, with the cutting lge bearing three distinct teeth on the inner margin, with the haracteristic groups of long and short setae. The outer surface is overed over its proximal half with numerous long, stout, pectinate tae. Silvestri makes no reference to the mandible and gives no gure of it in the species he describes.

The *maxilla* (fig. 6) is characterised by the length of the palp, ut is otherwise typical, having the two terminal segments shorter han those preceding it. The setae of the palp are simple and pirally arranged, and, on the third segment, much more numerous han on the two preceding; on the basal segment there is but a ingle row, whilst the second has two rows. Four stout bifid setae re borne on the basal portion of the maxilla or stipe, proximal to he origin of the palp. The galea is pointed, fringed with short, imple setae. The lacinia is produced distally into two prominent eeth, below which are five curved plate-like processes; marginally here are five stout equidistant bristles.

The *labium* (fig. 5) is large and well defined. The lobes of the sub-mentum are produced laterally to give the appendage a width which is about twice as great as its long axis. The sub-mentum has a deeply concave postero-lateral edge and bears a single row

if bifid setae at a short distance from its suture with the mentum. The well developed mentum has a similar transverse row of bifid setae. The lobes of the glossae and paraglossae are rounded and of approximately equal length, forming a subconical extension to the labium. The stout palp is approximately equal to the greater width of the labium and is closely covered with spinous setae. On the third segment the inner margin bears distally a small group of pectinate bristles. The terminal segment is oval or subglobular in shape; densely clothed with short simple setae and bearing apically a number of sensory papillae in a sub-circular row.

Thoracic Appendages.—The legs (fig. 4) are stoutly developed and project well beyond the lateral margins of the thorax. The femur is slight, short, and has a group of three pectinate setae immediately external to its articulation with the tibia. The serrations are developed on both margins of the setae and along their entire length, differing, thus, from those of the head and mandible. The tibia and tarsus are moderately elongate, the latter bearing symmetrical, elongate and only slightly curved claws (fig. 4a). A short median pulvillus is present as a reduced, inwardly curved hook.

The *mesosternite* (fig. 3a) is small, obtusely pointed and set with two double rows of setae on each side.

The larger *metasternite* (fig. 3) is rounded apically, slightly emarginate, and bears a single set of combs arranged on each side. The setae of both meso- and metasternites are typically pectinate.

Abdominal appendages.—Ventral styles occur only on the eighth and ninth sternites. Those occurring on the eighth segment are large and about two-thirds the length of those on the next segment. In the female the latter pair are slightly shorter than the extended processes of the ninth sternite (figs. 1a and 1b).

The *ovipositor* (figs. 1a and 8) is elongate and but slightly shorter than the extended processes of the ninth sternite. Both dorsal and ventral valves carry fine bristles only.

The *penis* (fig. 1b) is typical, short and profusely bristled.

Remarks:—This species appears to have its closest affinities with the species *A. producta* described by Escherich (1904). From that species it may be readily distinguished by the length of the ninth sternite, the processes of which in *A. producta* are extremely elongate, being shown in his illustration as more than twice the length of the accompanying styles. The tenth tergite of *A. splendens*, too, is more pointed and has a different arrangement of setae.

Acrotelsa devriesiana has a long acute telson and apparently wholly lacks the extended processes on the ninth sternite. It ex-

ibits also a number of other minor differences. The specific name plendens is chosen for this new species on account of the showy mulation of the filiform appendages and the mottled condition of ie body.

Acrotelsa westralis sp. nov. Plate XVII, figs. 11-20.)

Specific diagnosis.—Body moderately elongate, dorso-ventrally epressed, smaller in girth than *A. splendens* and tapering ightly posteriorly. Head depressed and closely attached to the iorax. Tufts of setae less developed. Eyes slightly anteriorly tuated and less conspicuous.

There is no visible neck region. Thorax as wide as abdomen, iort and little constricted posteriorly. Tergite ten equilateral, less cutely pointed than in *A. splendens,* converging edges almost raight and each bearing setae in three prominent, symmetrically rranged, short combs of not more than two or three setae. Body ntirely covered with scales. Antennae not as long as body, and erci as long as the abdomen. Metasternite short, with an almost emi-circular posterior margin with three single rows of pectinate etae on each side. Mesosternite slightly larger and more acute, ith three pairs of similar combs. Legs stout though not prominent, ie femur only visible in part from the dorsal aspect. Claws asym-ietrical, the outer one strongly hooked.

Colour (in spirit) purplish grey with brown scales; legs dark rown to black.

Length: male, 7 mm. Antennae, 5 mm. Caudal styles, 5 mm.

Locality: Beaconsfield, one specimen only, male.

Detailed description.—The *body* is less elongate than that of *l. splendens,* being about three times as long as wide. The thorax s only slightly depressed, giving the body a more cylindrical ap-earance. The head is less prominent, with the anterior margin ess convex in outline. There is no visible inter-segmental region or eck.

Thorax.—The thoracic tergites are moderately developed, short, ith the posterior margin characterised by an angular excavation n the pro- and meso-thoracic tergites. The posterior margin of the netathoracic tergites is concave posteriorly. The lateral margins of he thorax are strongly setose and the characteristic combs of oristles are in laterally situated rows which are inclined to the nargin of the tergite.

Abdomen.—There is little variation in the length of the ab-lominal tergites, all of which bear a symmetrical pair of setose ombs towards the lateral margin. The sternites of the eighth and inth bear styles; those of the eighth are small and reduced, whilst

those occurring on the ninth are abnormally elongate and slender. The posterior margin of the sternal plates is slightly concave, with combs consisting of about sixteen setae set at each side of the concavity. The tenth tergite is almost equilateral and less pointed than that of *A. splendens* and with the lateral margins crenate. There are three conspicuous symmetrical groups of setae on the telson and the number of bristles in each does not exceed three. The margin is set with fine setae, giving it a serrate appearance.

Head appendages.—The *antennae* differ little from those of *A. splendens*, except in the distinctly deep reddish brown colouring, zoning by constrictions appears at intervals of five segments (fig. 19).

The *Mandibles* (fig. 17) are shorter and slightly more convex, and with the first marginal tooth shorter than those following it. Setae are found in the characteristic positions.

Maxilla (fig. 15): There is a short stout maxillary palp, the terminal segments of which are shorter than those near the base. The spiral arrangement of the setae is less marked and they are more evenly distributed on the various segments. There are three stout, bifid setae on the stipe posterior to the base of the palp. The galea is blunt and irregular, whilst the lacinia is slender and rather acute.

Labium (fig. 16) the sub-mentum approaches a rectangular shape with the lateral lobes blunt cornered, and giving the labium a breadth of about twice the length of the long axis. The posterior margin of the sub-mentum has an angular concavity similar in shape to that occurring on the posterior border of the mesothorax. The mentum is distinctly reduced and divided into two lateral portions. It carries the typical row of stout, bifid setae. The stout palps have the terminal segment slightly elongate and the sensory papillae at their apex fewer than in *A. splendens* and arranged in a circular group.

Thoracic appendages.—The *legs* (fig. 14) are distinctly stout, with the coxa, femur and trochanter very strongly developed. The pectinate setae on these segments are long and coarse, and the serrations are confined to the apical region. The tibial spur is terminated in a hook. Asymmetry occurs in the claws, the outer one being strongly curved and the inner one strong and comparatively straight. The pulvillus is large and conspicuous on the second and third legs (figs. 14a, 14b). The *mesothoracic sternite* (fig. 18a) is larger than that of the metathorax and both have similarly arranged combs on the posterior margins.

A reduction occurs in the abdominal styles (fig. 12) of the eighth sternite, whilst an elongation is noticeable in those on the

ninth sternite. The penis (fig. 12) is short and strongly setose, but presents no marked peculiarities.

Remarks.—This species shows most affinity with the sub-species *A. devriesiana* var. *perspinata.* The telson, though slightly longer in the former, has a similar number of symmetrically arranged bundles of setae. The differences, however, occurring in the legs, the metasternite, and particularly in the arrangement of the sensory papillae are, in our opinion, too considerable to permit of this form being treated merely as a variety.

LIST OF REFERENCES:

1904 Escherisch: Das System der Lepismatiden.
1907 Silvestri: Die Fauna Sudwest Australiens, Band II, Lief. IV.
1913 Alexander: Aptera of Australia, Report of Australian Advancement of Science Meeting.

EXPLANATION OF PLATES XVI AND XVII.

Plate XVI.

1. Dorsal view of *Acrotelsa splendens* (female), antennae and cerci abbreviated.
1a. Ventral view of the posterior portion of the abdomen (female), showing the ventral styles, ovipositors, etc.
1b. Ventral view of the posterior portion of the abdomen (male), showing the ventral styles, penis, etc.
2. Dorsal view of the tenth tergite.
3. Median portion of the metasternite.
3a. Median portion of the mesosternite.
4. Third thoracic leg.
4a. Portion of the third tarsus and the claws.
5. The labium.
6. The maxilla.
7. The mandible.
8. Terminal portion of the ventral valve of the ovipositor.
9. Basal segments of the antenna.
9a. Typical antennal segments.
10. Type of body scales.

Plate XVII.

11. Dorsal view of *Acrotelsa westralis.*
12. Ventral view of the telson region (male).
13. Dorsal view of the telson.
14. Third thoracic leg.
14a. Portion of the tarsus of the third leg.
14b. Portion of the tarsus of the second leg.

15. The maxilla.
16. The labium.
17. The mandible.
18b. The median metathoracic plate.
18a. The median mesothoracic plate.
19. Typical antennal segments.
20. Typical scales.

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